

**Amendments to the Claims:**

1. (Canceled).
2. (Currently Amended) An apparatus according to Claim [[1]] 4, wherein the comparing circuit ~~is operative to generate~~ generates a signal that indicates linearity of the power amplifier responsive to a comparison of the first and second detector signals.
3. (Currently Amended) An apparatus according to Claim [[1]] 4, wherein the second power detector ~~circuit is operative to generate~~ generates the second detector signal without requiring phase information for the harmonic component.
4. (Previously Presented) An apparatus for monitoring a power amplifier coupled to a transmission medium, the apparatus comprising:
  - a detector circuit, coupled to the transmission medium, that generates first and second detector signals corresponding to fundamental and harmonic components, respectively, of a power amplifier output signal produced by the power amplifier, wherein the detector circuit comprises:
    - a directional coupler that couples the power amplifier to the antenna and that generates an output signal responsive to the power amplifier output signal;
    - a first power detector, coupled to the directional coupler, that generates the first detector signal from the output signal generated by the directional coupler;
    - a capacitor shunt circuit, coupled to the transmission medium;
    - a filter, capacitively coupled to the transmission medium by the capacitor shunt circuit, that filters the power amplifier output signal to produce a filtered output signal;
    - a second power detector, coupled to the filter, that generates the second detector signal from the filtered output signal; and
    - a comparing circuit, coupled to the detector circuit, that compares the first and

second detector signals.

5-7. (Canceled)

8. (Previously Presented) An apparatus for monitoring a power amplifier coupled to a transmission medium, the apparatus comprising:

a detector circuit, coupled to the transmission medium, that generates first and second detector signals corresponding to fundamental and harmonic components, respectively, of a power amplifier output signal produced by the power amplifier, the detector circuit comprising:

a first directional coupler that couples the power amplifier to the antenna and that generates a first output signal responsive to the power amplifier output signal.

a first power detector, coupled to the first directional coupler, that generates the first detector signal from the first output signal;

a second directional coupler that couples the power amplifier to the antenna and that generates a second output signal; and

a second power detector, coupled to the second directional coupler, that generates the second detector signal from the second output signal,

wherein the first output signal corresponds to a forward fundamental component, wherein the second output signal corresponds to a reflected harmonic component, and wherein the second directional coupler generates a third output signal corresponding to a reflected fundamental component; and a comparing circuit, coupled to the detector circuit, that compares the first and second detector signals; and

a third power detector, coupled to the second directional coupler, that processes the third output signal to determine power reflected to the power amplifier.

9-12. (Canceled)

13. (Currently Amended) An apparatus according to Claim [[1]] 4, wherein the first and second detector signals represent first and second powers for the fundamental and harmonic components, respectively.

14-15. (Canceled)

16. (Currently Amended) An apparatus according to Claim [[1]] 4, wherein the second detector signal comprises a plurality of second detector signals, respective ones of which correspond to respective harmonic components of the power amplifier output signal.

17. (Previously Presented) An apparatus, comprising:  
an antenna;  
a power amplifier that generates a power amplifier output signal in a transmission medium coupling the power amplifier to the antenna;  
a detector circuit, coupled to the transmission medium, that generates first and second detector signals corresponding to fundamental and harmonic components, respectively, of the power amplifier output signal, wherein the detector circuit comprises:

a first directional coupler that couples the power amplifier to the antenna and that generates a first output signal corresponding to a forward fundamental component responsive to the power amplifier output signal;

a first power detector, coupled to the first directional coupler, that generates the first detector signal from the first output signal;

a second directional coupler that couples the power amplifier to the antenna and that generates a second output signal corresponding to a reflected harmonic component and a third output signal corresponding to a reflected fundamental component;

a second power detector, coupled to the second directional coupler, that generates the second detector signal from the second output signal; and

a third power detector, coupled to the second directional coupler, that processes the third output signal to determine power reflected to the power amplifier; and

a control circuit, coupled to the detector circuit and operatively associated with the power amplifier, that controls a DC bias of the power amplifier responsive to a comparison of the first and second detector signals.

18. (Original) An apparatus according to Claim 17, wherein the control circuit controls linearity of the power amplifier responsive to a comparison of the first and second detector signals.

19. (Canceled).

20. (Currently Amended) An apparatus according to Claim 17, wherein the control circuit comprises: An apparatus, comprising:

~~an antenna;~~

~~a power amplifier that generates a power amplifier output signal in a transmission medium coupling the power amplifier to the antenna;~~

~~a detector circuit, coupled to the transmission medium, that generates first and second detector signals corresponding to fundamental and harmonic components, respectively, of the power amplifier output signal; and~~

~~a control circuit, coupled to the detector circuit and operatively associated with the power amplifier, that controls the power amplifier responsive to a comparison of the first and second detector signals, wherein the control circuit comprises:~~

~~a detector circuit, coupled to the transmission medium, that generates first and second detector signals corresponding to forward fundamental and reflected harmonic components, respectively, of a power amplifier output signal produced by the power amplifier;~~

~~a baseband processor that generates a data signal; and~~

~~a modulator, coupled to the baseband processor, that receives the data signal and modulates the received data signal to generate [[the]] an input signal such that the level of the input signal varies responsive to a level control signal applied to the modulator,~~

~~wherein the power amplifier receives the input signal and generates the power amplifier output signal therefrom, and wherein the baseband processor is responsive to the detector circuit to generate the level control signal applied to the modulator responsive to a comparison of the first and second detector signals.~~

21. (Original) An apparatus according to Claim 20, wherein the baseband processor is further operative to apply a bias control signal to the power amplifier responsive to a comparison of the first and second detector signals.

22. (Canceled)

23. (Previously Presented) An apparatus according to Claim 17, wherein the control circuit comprises a bias control circuit, responsive to the detector circuit, that applies a bias control signal to the power amplifier responsive to a comparison of the first and second detector signals.

24. (Currently Amended) An apparatus according to Claim 17, wherein the second power detector circuit is operative to generate the second detector signal without requiring phase information for the harmonic component.

25-28. (Canceled).

29. (Original) An apparatus according to Claim 17, wherein the first detector signal represents a forward power for the fundamental component.

30. (Original) An apparatus according to Claim 29, wherein the second detector signal represents a reflected power for the harmonic component.

31. (Original) An apparatus according to Claim 17, wherein the first and second detector signals represent respective powers for the fundamental and harmonic components.

32. (Currently Amended) An apparatus according to Claim 17, wherein the detector circuit comprises:

a filter, coupled to the transmission medium, that filters the power amplifier output signal to produce a filtered output signal, ~~and~~

[[a]] wherein the second power detector[[,]] is coupled to the filter, ~~that~~ and generates the second detector signal from the filtered output signal.

33. (Original) An apparatus according to Claim 32, wherein the filter is capacitively coupled to the transmission medium.

34. (Canceled).

35. (Original) An apparatus according to Claim 17, wherein the second detector signal comprises a plurality of second detector signals, respective ones of which correspond to respective harmonic components of the power amplifier output signal.

36-44. (Canceled).